PROGRAM

Sunday, May 18

2:00–5:00 p.m.	Registration

Monday, May 19

7:30–6:00 p.m.	Registration
7:30–8:30 a.m.	Continental Breakfast
8:30–8:45 a.m.	Welcome, Hal Graboske, Deputy Director, Lawrence Livermore National Laboratory
8:45–10:20 a.m.	Overview of Hydrogen, Fuel Cells, & Infrastructure Technologies Program, Steve Chalk Hydrogen, Fuel Cells and Infrastructure Technologies Program R&D Plan, Technology Development Managers
10:20–10:40 a.m.	Break
10:40–6:00 p.m.	Technical Sessions
6:00–8:00 p.m.	Poster Session
6:00–8:00 p.m.	Reception

Hydrogen					Fuel Cells				
Production - Biological and Biomass-Based			**Affiliation**	**Speaker**	**High Temperature Membranes/Cathodes/Manufacturing**			**Affiliation**	**Speaker**
10:40–10:50	Technology Development Manager Overview		DOE	Pete Devlin, Roxanne Danz	10:40–10:50	Technology Development Manager Overview		DOE	Nancy Garland
10:50–11:10	Project 1	H_2 Production by Catalytic Reforming of Pyrolysis Vapors	NREL	Bob Evans	10:50–11:20	Project 70	Integrated Mfg. For Adv. Membrane Electrode Assemblies	De Nora	Emory DeCastro
11:10–11:30	Project 2	Pyrolysis of Waste Plastics and Greases	NREL	Stefan Czernik	11:20–11:50	Project 71	Development Of High-Temp. Polymeric Membranes & Improved Cathode Catalysts	UTC	Mike Perry
11:30–11:50	Project 3	Fluidisable Reforming Catalysts	NREL	Kim Magrini	11:50–12:20	Project 72	Advanced MEA's for Enhanced Operating Conditions	3M	Mark Debe
11:50–1:05	**Lunch**				**12:20–1:20**	**Lunch**			
1:05–1:30	Project 4	Bacterial Colony Fermentation	ISU	Shih-wu Sung	**High Temperature Membranes/Cathodes/Manufacturing**				
1:30–1:55	Project 5	Biological Water Gas Shift	NREL	Pin-Cing Maness, Ed Wolfrum	1:20–1:45	Project 73	R&D on an Ultra-Thin Composite Memb. for High Temp. Operation in PEMFCs	Fuel Cell Energy	Chao-Yi Yuh
Production - Fossil Based					1:45–2:10	Project 74	Development Of High-Perf., Low-Pt Cathodes Containing New Catalyst & Layer Struct.	Superior MicroPowders	Paolina Atanassova
1:55–2:05	Technology Development Manager Overview		DOE	Pete Devlin, Arlene Anderson	2:10–2:35	Project 75	Design & Installation of a Pilot Plant for High-Volume Electrode	SWRI	James Arps
2:05–2:30	Project 6	Thermocatalytic CO_2-free Prod. of H_2 from HC Fuels	Florida Solar Energy Center	Nazim Muradov	2:35–3:00	Project 76	Scale-Up of Carbon/Carbon Composite Bipolar Plates	Porvair Corp.	David Haack
2:30–2:55	Project 7	Novel Catalytic Fuel Proc. Using Micro-channel Steam Reforming & Adv. Separations Tech.	InnovaTek	Patricia Irving	3:00-3:20	Break			
2:55–3:20	Project 8	ITM Syngas & ITM H_2: Eng. Development Of Ceramic Membrane Reactor Systems for	Air Products & Chemicals Inc.	Christopher Chen	**High Temperature Membranes/Cathodes/Electrocatalysts**				
3:20–3:45	Project 9	Integrated Ceramic Membrane System for H_2 Production	Praxair	Joseph Schwartz	3:20–3:55	Project 77	High Temperature Membranes	Case West Res. University	Tom Zawodzinski
3:45–4:05	Break				3:55–4:20	Project 78	Electrodes for Polymer Electrolyte Memb. FC Operation on H_2/Air &	LANL	Francisco Uribe
4:05–4:30	Project 10	Low Cost H_2 Prod. Platform	Praxair	Tim Aaron	4:20–4:45	Project 79	New Electrocatalysts for FCs	LBNL	Phil Ross

4:30–4:55	Project 11	Defect-free Thin Film Membranes for H_2 Separation & Isolation	SNL	Tina Nenoff	4:45–5:10	Project 80	Low-Platinum Catalysts for O_2 Reduction at PEMFC Cathodes	NRL	Karen Swider-Lyons
					5:10–5:35	Project 81	Low-Platinum Loading Catalysts for Fuel Cells	Brookhaven National	Radislav Adzic
					5:35–6:00	Project 82	Microstructural Characterization of PEM Fuel Cells	ORNL	Doug Blom
6:00–8:00	Reception / Poster Session								
Hydrogen Posters					**Fuel Cell Posters**				
Project 12	Maximizing Photosynthetic Efficiencies in H_2 Prod. in Microalgal Cultures		UC Berkeley	Tasios Melis	Project 83	Bipolar Plate-Supported SOFC		ANL	Deborah Myers
Project 13	Reformer Model Development for Hydrogen Production		JPL	Josette Bellan	Project 84	Coatings for Fuel Cell Air Compressors		ANL	George Fenske
Project 14	Photoelectrochemical H_2 Production		University of Hawaii	Eric Miller	Project 85	Carbon Composite Bipolar Plates		ORNL	Ted Besmann
Project 15	Photoelectrochemical Systems for H_2 Production		NREL	John Turner	Project 86	Cost-Effective Surface Modification for Metallic Bipolar Plates		ORNL	Mike Brady
Project 16	Separation Membrane Development		SRTC	Leung Heung	Project 87	Carbon Foam for Fuel Cell Humidification		ORNL	Ron Ott
Project 17	Distributed Hydrogen Fueling Systems Analysis		DTI	Brian James	Project 88	Adv. Underground Vehicle Power & Control FC Mine Locomotive		Vehicle Projects LLC	David Barnes
Project 18	Biomass-Derived H_2 from a Thermally Ballasted Gasifier		Iowa State University	Robert Brown	Project 89	Sulfur Removal from Reformate		ANL	Theodore Krause
Project 19	Technical Analysis: Integrating a H_2 Energy Station Into a Federal Bldg		TIAX	Steven Lasher	Project 90	Assessment of FC Auxiliary Power Systems for On Road Transp. Appls.		TIAX	Steve Lasher
Project 20	Hydrogen Technical Analysis		TIAX	Steven Lasher	Project 91	Evaluation of Partial Oxidation FC Reformer Emissions		TIAX	Stefan Unnasch
Project 21	Power Park Analysis		Air Products	Todd Carlson	Project 92	Fuel Processing of Diesel Fuel For APUs		NETL	David Berry
Project 22	Novel Compression and Fueling Apparatus to Meet Hydrogen Vehicle Range Requirements		Air Products & Chemicals Inc.	Todd Carlson	Project 93	Gallium Nitride Integrated Gas/Temp Sensors for FC Sys Monitoring for H_2 & Carbon Monoxide		Peterson Ridge LLC	Steve Pyke
Project 23	Power Parks		State of HI, Dept of Bus, Economic Dev	Rick Rocheleau	Project 94	Development of a Robust Fiber-Optic Temperature Sensor for Fuel Cell Monitoring		ORNL	Timothy McIntyre
Project 24	Power Parks		Pinnacle West	Ray Hobbs	Project 95	Selective Catalytic Oxidation of Hydrogen Sulfide		ORNL	Tim Armstrong
Project 25	Power Parks		DTE Energy	Rob Regan	Project 96	SOFC Auxiliary Power Units for Truck Applications		PNNL	Mo Khaleel
Project 26	Filling Up With Hydrogen 2000		Stuart Energy	Matthew Fairlie, Paul Scott	Project 97	High Temperature Proton Exchange Membranes		VPI	Jim McGrath
Project 27	HCNG Heavy Duty Vehicle Prime Mover		NRG Tech	Kirk Collier	Project 98	Inorganic Solid State Proton Conducting Systems		Colorado School of Mines	Andy Herring
Project 28	Internal Combustion Engines R&D		SNL	Jay Keller	Project 99	Diesel Reforming		ANL	John Kopasz
Project 29	Reduced Turbine Emission Using H_2-Enriched Fuels		SNL	Jay Keller	Project 100	Fast Start Reformer Components		LANL, ORNL, and PNNL	Michael Inbody, April McMillian,
Project 30	Techno-Economic Analysis of H_2 Production by Gasification of Biomass		GTI	William Liss					
Project 31	Supercritical Water Partial Oxidation		GA	Mike Spritzer					
Project 32	Algal Hydrogen Production System		ORNL	James Lee					
Project 33	Biomass Pyrolysis Unit For the Production of Hydrogen from Peanut Shells		Clark University	Yaw Yeboah					
Project 34	Water-Gas Shift Membrane Reactor Studies		University of Pittsburgh	Robert Enick					
Project 35	Solar/High Temperature Production of Hydrogen		NREL	Al Lewindowski					
Project 36	Power Parks System Simulation		SNL	Andy Lutz					

Project 37	Demonstration of Hydrogen Refueling Station with On-Site Generation	Hyradix/SunLine	Michele Davies	

Tuesday, May 20

7:30–5:00 p.m.	Registration								
7:00–8:00 a.m.	Continental Breakfast								
8:00–5:30 p.m.	Technical Sessions								
p.m.	Baseball Game A's vs. Twins (7:05 pm)								
Hydrogen					**Fuel Cells**				
Production - Electrolytic			**Affiliation**	**Speaker**	**Fuel Cell Power Systems Analysis**			**Affiliation**	**Speaker**
8:00–8:10	Technology Development Manager Overview		DOE	Matt Kauffman	8:00–8:10	Technology Development Manager Overview		DOE	Patrick Davis
8:10–8:35	Project 38	Low Cost, High Efficiency Reversible FC Systems	Technology Management Inc.	Robert Ruhl	8:10–8:35	Project 101	Fuel Cell Systems Analysis	ANL	Rajesh Ahluwalia
8:35–9:00	Project 39	High-Efficiency Steam Electrolyzer	LLNL	Andrew Vance	8:35–9:00	Project 102	Fuel Cell Vehicle Systems Analysis	NREL	Tony Markel
9:00–9:15	Project 40	High Temperature Solid Oxide Electrolyzer System	INEEL	Steve Herring	9:00–9:25	Project 103	Cost Analyses of Fuel Cell Stacks/Systems	TIAX	Eric Carlson
Production - Photolytic and Photoelectrochemical					9:25–9:50	Project 104	Precious Metal Availability & Cost Analysis for PEMFC Commercialization	TIAX	Eric Carlson
9:15–9:25	Technology Development Manager Overview		DOE	Roxanne Danz	9:50–10:15	Project 105	DFMA Cost Est. of FC/Reformer Syst. at Low, Med., & High Prod.	DTI	Brian James
9:25–9:50	Project 41	Photoelectrochemical H_2 Production Using New Combinatorial Chemically Derived Materials	UC Santa Barbara	Eric McFarland	10:15–10:35	Break			
9:50–10:10	Break				**Fuel Processing**				
10:10–10:35	Project 42	Algal Hydrogen Production	NREL	Maria Ghirardi, Michael Seibert	10:35–10:45	Technology Development Manager Overview		DOE	Valri Lightner
10:35–11:00	Project 43	Combinatorial Discovery of Photocatalysts for H_2 Production	SRI	Brent MacQueen	10:45–11:10	Project 106	Water-Gas Shift Catalysis	ANL	Sara Yu Choung
11:30–12:30	**Lunch**				11:10–11:35	Project 107	Catalysts for Autothermal Reforming	ANL	Jennifer Mawdsley
Hydrogen Storage					11:35–12:00	Project 108	Development of WGS Memb. Reactor	Ohio State University	Winston Ho
12:30–12:45	Technology Development Manager Overview		DOE	JoAnn Milliken	**12:00–1:00**	**Lunch**			
Storage - High Pressure Tanks					**Fuel Processing Cont.**				
12:45–1:10	Project 44	H_2 Composite Tank Program	Quantum Technologies Inc.	Neel Sirosh	1:00–1:25	Project 109	Hydrogen Enhancement	UTRC	Zissis Dardas
1:10–1:40	Project 45	Development of a Compressed H_2 Gas Integrated Storage Syst. for FC Vehicles	John Hopkins University/ Lincoln	John Wozniak	1:25–2:00	Project 110	Advanced High Efficiency Quick Start Fuel Processor for Transportation Applications	Nuvera	Prashant Chintawar, Christopher O'Brien
1:40–2:00	Project 46	H_2 Storage Using Lightweight Tanks	LLNL	Andrew Weisberg	2:00–2:25	Project 111	Fuel Cell Distributed Power Package Unit: Fuel Processing Based on Autothermal Cyclic Reforming	GE	Vladimir Zamansky
2:00–2:20	Project 47	H_2 Storage in Insulated Pressure Vessels	LLNL	Salvador Aceves	2:25–2:50	Project 112	Plate-Based Fuel Processing System	Catalytica	Ralph Dalla Betta
2:20–2:40	Break				2:50–3:10	Break			
2:40–3:00	Project 48	Low Permeation Liner for H_2 Gas Stor. Tanks	INEEL	Paul Lessing	3:10–3:45	Project 113	Quick-Starting of Fuel Processors	ANL	Shabbir Ahmed
3:00–3:20	Project 49	Advanced Thermal Hydrogen Compression	Ergenics Inc.	David DaCosta	3:45–4:10	Project 114	Progress in Microchannel Steam Reformation of Hydrocarbon Fuels	PNNL	Greg Whyatt

Storage - Hydrides					4:10–4:35	Project 115	Reformate Clean-Up: The Case for Microchannel Architecture	PNNL	Ward TeGrotenhuis
3:20–3:50	Project 50	Catalytically Enhanced H_2 Stor. Syst.	University of Hawaii	C. Jensen	4:35–5:00	Project 116	Fuel Processors for PEM FCs	University of Michigan	Levi Thompson
3:50–4:20	Project 51	Hydride Development for Hydrogen Storage	SNL	K. Gross					
4:20–4:40	Project 52	Hydride Development	FSEC	D. Slattery					
4:40–5:10	Project 53	High-Density H_2 Stor. Demo. Using NaAlH4-Based Complex Compound Hydrides	UTRC	D. Anton					
5:10–5:40	Project 54	Standardized Testing Program for Emergent Chemical Hydride & Carbon Storage Tech.	SWRI	R. Page					
Activities at night:		Baseball Game: A's vs. Twins (7:05 pm)							

Wednesday, May 21

7:30–5:00 p.m.	Registration
7:00–8:00 a.m.	Continental Breakfast
8:00–11:25 a.m.	Technical Sessions
1:00–6:00 p.m.	Tours of LBNL, LLNL, and SNL or Poster Session

Hydrogen					Fuel Cells				
Storage - Carbon and Other Storage			Affiliation	Speaker	Direct Methanol Fuel Cells			Affiliation	Speaker
8:00–8:30	Project 55	H_2 Storage in Carbon Single-Wall Nanotubes	NREL	M. Heben	8:00–8:05	Technology Development Manager Overview		DOE	Nancy Garland
8:30–8:50	Project 56	Doped Carbon Nanotubes for H_2 Storage	Westinghouse Savannah River Tech	R. Zidan	8:05–8:30	Project 117	Direct Methanol Fuel Cells	LANL	Piotr Zelenay
8:50–9:10	Project 57	H_2 Storage in Metal-Modified Single-Wall Carbon Nanotubes	Cal Tech	C. Ahn	8:30–8:55	Project 118	Direct Methanol Fuel Cells	JPL	S. Narayan
9:10–9:30	Project 58	Hydrogen Storage Via Ammonia and Aminoborane	Florida Solar Energy Center	A. Raissi	Fuel Cell Power System Development				
9:30–10:00	Break				8:55–9:10	Distributed Energy Fuel Cell Program Summary		DOE	Kathi Epping
Infrastructure Development - Hydrogen Fueling Systems & Infrastructure					9:10–9:35	Project 119	Atmos. FC Power Syst. for Transportation	UTC Fuel Cells	Mike Tosca
10:00–10:10	Technology Development Manager Overview		DOE	Mark Paster	9:35–10:00	Project 120	PEMFC Power System on Ethanol	Caterpillar, Inc.	Thomas Richards
10:10–10:35	Project 59	Development of a Turnkey Commercial H_2 Fueling Station	Air Products & Chemicals Inc.	David Guro	10:00–10:25	Project 121	Proton Conducting Membranes	Iowa State University	Steve Martin
10:35–11:00	Project 60	Autothermal Cyclic Reforming-Based Fueling Syst.	GE Energy	Ravi Kumar	10:25–10:45	Break			
11:00–11:25	Project 61	Dev. of a Natural Gas to H_2 Fuel Station	GTI	Bill Liss	Fuels Effects				
11:30–12:30	**Lunch**				10:45–10:55	Technology Development Manager Overview		DOE	Nancy Garland
					10:55–11:20	Project 122	Effects of Fuels Constituents on Fuel Proc. Catalysts	ANL	John Kopasz
					11:20–11:45	Project 123	Testing of Fuels in Fuel Cell Reformers	LANL	Rodney Borup
					11:45–12:45	**Lunch**			

1:00–6:00 p.m.	Poster Session
1:00–6:00 p.m.	Tours of LBNL, SNL, LLNL

Thursday, May 22

7:30–12:00 p.m.	Registration								
7:00–8:00 a.m.	Continental Breakfast								
8:00–3:00 p.m.	Technical Sessions								
11:25 or 2:50 p.m.	Closing								
Hydrogen					**Fuel Cells**				
Infrastructure Development - Hydrogen Fueling Systems &			**Affiliation**	**Speaker**	**Sensors for Safety and Performance**			**Affiliation**	**Speaker**
8:00–8:25	Project 62	Production & Delivery Analysis	NREL	Maggie Mann	8:00–8:10	Technology Development Manager Overview		DOE	Neil Rossmeissl
8:25–8:50	Project 63	H_2 Reformer, FC Power Plant, & Vehicle Refueling System	Air Products & Chemicals Inc.	Venki Raman	8:10–8:35	Project 124	Carbon Monoxide Sensors for Reformate-Powered FCs	LANL	Rangachary Mukundan
8:50–9:15	Project 64	Fuels Choice	TIAX	Steven Lasher	8:35–9:00	Project 125	Electrochemical Sensors for PEMFC Vehicles	LLNL	Peter Martin
9:15–9:40	Project 65	Renewable Energy Transportation System	SunLine	John Williams	9:00–9:25	Project 126	Interfacial Stability of Thin Film H_2 Sensors	NREL	Roland Pitts
9:40–10:05	Project 66	H_2 Storage and Compression: LAX	Praxair	Robert Bolinger	9:25–9:45	Break			
10:05–10:25	Break				9:45–10:10	Project 127	Development of Sensors for Auto FC Systems	UTCFC	Brian Knight
Codes and Standards					10:10–10:35	Project 128	Micro-Machined Thin Film H_2 Gas Sensors	Adv Tech Materials Inc.	Debbie Sarno
10:25–10:35	Technology Development Manager Overview		DOE	Neil Rossmeissl	10:35–11:00	Project 129	Sensor Development for PEMFC Systems	Honeywell Sensing & Controls	Bruce Figi
10:35–11:00	Project 67	Non-Destructive Study of H_2O Transport Mechanism Inside Operating PEMFCs Using Neutron Imaging Techniques	NIST	Muhammad Arif	**Air Management Subsystems**				
11:00–11:25	Project 68	Codes & Standards Analysis	University of Miami	Michael Swain	11:00–11:10	Technology Development Manager Overview		DOE	Patrick Davis
11:25–11:50	Project 69	Hydrogen Codes and Standards	NREL	Jim Ohi	11:10–11:35	Project 130	Turbocompressor for PEM Fuel Cells	Honeywell	Mark K. Gee
11:50–12:00	Closing remarks				11:35–12:00	Project 131	Development & Testing of a High-Efficiency, Integrated Compressor/Expander based on Torroidal Intersecting Vane Machine	Mechanology, LLC	Sterling Bailey
12:00–1:00	**Lunch**				**12:00–1:00**	**Lunch**			
1:00–2:00	Closed Session – DOE Tech Team, and Advisory Panel Discussions				**Air Management Subsystems Cont.**				
					1:00–1:25	Project 132	Motor Blower Technology for Fuel Cell Automotive Power Systems	UTC Fuel Cells	Tom Clark
					1:25–1:50	Project 133	Hybrid Compressor/Expander Module	TIAX	George Selecman
					1:50–2:00	Closing remarks			
					2:00–3:00	Closed Session – DOE Tech Team, and Advisory Panel Discussions			